REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 353
GASOLINE IN STATIONARY DISPENSING TANKS

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 353
GASOLINE IN STATIONARY DISPENSING TANKS

SECTION 100 - GENERAL

101 PURPOSE: To limit VOC (volatile organic compound) emissions from gasoline stored in stationary dispensing tanks, and from gasoline delivered into such tanks.

102 APPLICABILITY: This rule is applicable to gasoline stored in or transferred into any stationary dispensing tank with a capacity of more than 250 gallons (946 l). This includes gas stations and other gasoline-dispensing facilities, including those located at airports.

SECTION 200 - DEFINITIONS:
For the purpose of this rule, the following definitions shall apply:

201 CARB-CERTIFIED - A vapor control system, subsystem, or component that has been specifically approved by system configuration and manufacturer's name and model number in an executive order of the California Air Resources Board (CARB), pursuant to Section 41954 of the California Health and Safety Code. Such orders are included in CARB's publication, "Gasoline Facilities - Phase I & II", which is available as set forth in subsection 503.4.

202 DISPENSING TANK - Any stationary tank which dispenses gasoline into a motorized vehicle's fuel tank that directly fuels its engine(s). This includes aircraft.

203 EXCESS GASOLINE DRAINAGE - More than 10 milliliters (2 teaspoonsful) of liquid gasoline lost from the end of a fill hose or vapor hose in the process of connecting or disconnecting the hose; or any quantity of gasoline escaping out the end of such a hose that wets any area(s) on the ground having an aggregate area greater than 113 square inches, or the perimeter of which would encompass a circle of 12 inches (30.5 cm) diameter. This does not include drainage into a fill-tube's spill containment receptacle.

204 GASOLINE - Any petroleum distillate or blend of petroleum distillate with other combustible liquid(s), such as alcohol, that is used as a fuel for internal combustion engines and has a vapor pressure between 4.0 and 14.7 psi (200 - 760 mm Hg.), as determined by the applicable method pursuant to subsections 503.2 and 504.2. For the purposes of this rule, liquefied petroleum gas (LPG) is excluded.

205 GASOLINE DELIVERY VESSEL - Any vehicular-mounted container such as a tanker truck, tank trailer, cargo tank or any other wheel-mounted container used to transport

gasoline. This includes any hosing the vessel carries through which deliveries must be made.

206 **GASOLINE DISPENSING OPERATION -** All gasoline dispensing tanks and associated equipment located on one or more contiguous or adjacent properties under the control of the same person (or persons under common control).

207 **GASOLINE VAPORS -** Vapors, originating from liquid gasoline, that are usually found in mixture with air. Included are any droplets of liquid gasoline or of gasoline vapor condensate that are entrained by the vapor.

208 **INSTALLER -** The person, as defined in Rule 100, that installs VOC control equipment at a dispensing facility.

209 **LEAK FREE -** A condition in which there is no liquid gasoline escape or seepage of more than 3 drops per minute from gasoline storage, handling, and ancillary equipment, including, but not limited to, seepage and escapes from above ground fittings.

210 **NON-PRECURSOR ORGANIC COMPOUND -** Any of the organic compounds which have been designated by the EPA as having negligible photochemical reactivity. EPA designates such compounds as "exempt". A listing of the compounds is found in Rule 100 of these Air Pollution Control Rules and Regulations.

211 **OFFSET FILL LINE -** Any dispensing tank's gasoline fill line (piping and fittings) which contains one or more bends.

212 **POPPETTED DRY BREAK** - A Stage 1 vapor recovery device that opens only by connection to a mating device to ensure that no gasoline vapors escape from the dispensing tank before the vapor return line is connected.

213 **SIDE FILL PIPE -** A fill pipe that enters a dispensing tank through the tank's side.

214 **STAGE 1 VAPOR RECOVERY -** At a gasoline dispensing facility, the use of installed vapor recovery equipment designed to reduce by at least 90% the VOC vapor that would otherwise be displaced into the atmosphere from a dispensing tank when gasoline is delivered into the tank by a delivery vessel. This reduction may be done either by capturing the displaced vapors within the delivery vessel, and/or by processing the vapors on site with an emission processing device (such as a VOC oxidizer).

215 **TANK CAPACITY -** The maximum volume of liquid gasoline a particular tank is allowed to store while still complying with all applicable rules, including local, state, and Federal rules.

216 **TOP FILL or VERTICAL FILL PIPE -** A fill pipe that enters a dispensing tank through its top.

217 **VAPOR LOSS CONTROL DEVICE -** Any piping, hoses, equipment, or devices which are used to collect, store and/or process VOC vapors at a service station or other gasoline dispensing operation.

218 VAPOR TIGHT - A condition in which an organic vapor analyzer (OVA) or a combustible gas detector (CGD) at a potential VOC leak source shows either less than 10,000 ppm when calibrated with methane, or less than 1/5 of the lower explosive limit, when prepared according to the manufacturer and used according to subsection 504.3 of this rule.

SECTION 300 - STANDARDS - VAPOR LOSS CONTROL MEASURES REQUIRED: No person shall transfer or permit the transfer of gasoline from any delivery vessel into any stationary dispensing tank located above or below ground with a capacity of more than 250 gallons (946 l) unless the following conditions are met:

301 BASIC TANK INTEGRITY: No vapor or liquid escapes are allowed through a dispensing tank's outer surfaces, nor from any of the joints where the tank is connected to pipe(s), wires, or other system.

301.1 VOC Emission Standard:

a. Gasoline delivery operations shall be vapor tight, as defined in Section 218, except for tanks exempted by Section 305 from Stage 1 vapor recovery requirements.

b. Tanks and their fittings shall be vapor tight except for the outlet of a pressure/vacuum relief valve on a dispensing tank's vent pipe. Specifically, this means that at a probe tip distance of 1 inch (2.5 cm) from a surface, no vapor escape shall exceed 1/5 of the lower explosive limit. This applies to tanks containing gasoline regardless of whether they are currently being filled, and to caps and other tank fittings.

301.2 Leakage Limits – Liquid Leaks And Spills:

a. Gasoline storage and receiving operations shall be leak free. Specifically, no liquid gasoline escape of more than 3 drops per minute is allowed. This includes leaks through the walls of piping, fittings, fill hose(s), and vapor hose(s).

b. There shall be no excess gasoline drainage from the end of a fill hose or a vapor hose. Specifically, not more than 2 teaspoonsful of gasoline shall be lost in the course of a connect or disconnect process.

301.3 Spill Containment Equipment: The entire spill containment system including gaskets shall be kept vapor-tight.

a. The Spill Containment Receptacle:

(1) The outer surface of the spill containment receptacle shall have no holes or cracks and shall allow no vapors to pass from the dispensing tank through it to the atmosphere.

(2) Spill containment receptacles shall be kept clean and free of foreign material at all times.

(3) Spill containment receptacles shall be inspected at least weekly. Records of inspection and cleaning shall be kept according to subsection 502.2.

b. If the spill containment is equipped with a passageway to allow material trapped by the containment system to flow into the interior of the dispensing tank:

(1) The passageway shall be kept vapor tight at all times, except during the short period when a person opens the passageway to immediately drain material trapped by the containment system into the tank.

(2) The bottom of the receptacle shall be designed and kept such that no puddles of gasoline are left after draining through the passageway has ceased.

c. The dispensing tank owner/operator is responsible for assuring that before a delivery vessel leaves the premises after a delivery:

(1) Any gasoline in a dispensing tank's spill containment receptacle has been removed.

(2) Any gasoline that a person has taken out of a spill receptacle, as a free liquid or as absorbed into/onto other material removed from the receptacle, shall be contained in such a way that VOC emission is prevented; disposal in conformance with applicable hazardous waste rules is sufficient to meet this requirement.

(3) Any plunger/stopper assembly is unimpeded and sealing correctly.

d. Criteria Of Violation/Exceedance For Spill-Containment Receptacles: A reading on a CGD or OVA exceeding 1/5 LEL (10,000 ppm as methane) is an exceedance. The procedure for performing a determination is set forth in subsection 504.3.

302 FILL PIPE REQUIREMENTS:

302.1 Each fill-line into a stationary dispensing tank shall be equipped with a permanent submerged fill pipe that has a discharge opening which is completely submerged when the liquid level is 6 inches above the tank bottom.

a. Threads, gaskets, and mating surfaces of the fill pipe assembly shall be designed and maintained tight. There shall be no liquid or vapor leakage at the joints of the assembly.

b. An owner/operator is responsible to assure that external fittings of a fill pipe assembly shall be inspected weekly to assure that cap, gasket, and piping are intact and are not loose.

(1) A record of the inspection shall be made according to subsection 502.2.

(2) An owner/operator shall act to prevent driver/deliverers from connecting the delivery hose coupling to a fill pipe coupling with so much twisting force that the fill pipe assembly is loosened. One method of complying is to have a CARB-certified swivel coupling as part of the fill pipe assembly (reference subsection 503.4 for CARB).

302.2 Fill Pipe Caps:

a. The cap shall have a securely attached, intact gasket.

b. The cap and its gasket shall always function properly, latch completely so that it cannot then be easily twisted by hand, and have no structural defects.

c. The cap of a gasoline fill pipe shall always be fastened securely on the fill pipe except immediately before, during, and immediately after:

(1) "Sticking" the tank to measure gasoline depth.

(2) Delivering gasoline into the tank.

(3) Doing testing, maintenance or inspection on the gasoline/vapor system.

d. Do not unfasten or remove a fill pipe cap unless every other fill pipe is either securely capped or connected to a delivery hose, except as otherwise needed for testing, maintenance, or inspection.

302.3 Restrictions On Multiple Fill Pipes:

a. A tank installed after December 31, 1998 shall not be equipped with more than one fill pipe unless more than one fill pipe is specifically allowed in the Air Pollution Permit and there is a 2-point system having a properly installed vapor return pipe close to each fill pipe.

b. Restriction On Concurrent Delivery: An owner/operator of a dispensing tank fitted with more than 1 fill pipe shall prevent concurrent delivery of gasoline by a gasoline delivery vessel to more than 1 fill pipe of the tank by locking additional fill pipes shut or by using other permanent means, unless:

(1) Concurrent delivery is specifically allowed in the facility's Air Pollution Permit; and

(2) All fill pipes in use are part of a 2-point vapor recovery system; and

(3) Before making a concurrent delivery through a tank's second fill pipe, an additional vapor return hose from the delivery vessel must first be attached to the vapor return line associated with the second fill pipe.

302.4 Fill Pipe Obstructions:

a. Any type of screen and/or other obstructions in fill pipe assemblies shall be permanently removed by November 1, 1999, unless it is specifically allowed by an Air Pollution Permit or is CARB-certified, as referenced in subsection 503.4.

b. A screen or other obstruction, allowed by Air Pollution Permit or CARB, shall be temporarily removed by the owner/operator of a dispensing tank prior to inspection by the Control Officer to allow measurements pursuant to this rule.

302.5 Overfill Protection Equipment: Overfill prevention equipment shall be vapor tight to the atmosphere. Any device mounted within the fill pipe shall be so designed and maintained that no vapor from the vapor space above the gasoline within the tank can penetrate into the fill pipe or through any of the fill pipe assembly into the atmosphere.

303 VAPOR RECOVERY SYSTEM:

303.1 Gasoline vapors displaced from a dispensing tank by gasoline being delivered shall be handled by a Stage Vapor Recovery System, unless the tank is exempted by Section 305.

303.2 Stage 1 Vapor-Recovery System Configuration (Reference subsection 503.4 for identification of CARB-certified components)**:**

a. Replacement: After June 16, 1999, no part of a vapor recovery system for which there is a CARB specification shall be replaced with anything but CARB-certified components.

b. Vapor Valves:

(1) All vapor return lines from dispensing tanks shall be equipped with CARB-certified, spring loaded, vapor tight, poppetted dry break valves.

(2) Vapor valves shall be inspected weekly to determine if closure is complete and gaskets are intact; a record shall be made pursuant to subsection 502.2.

c. Above-Ground Systems: After June 16, 1999, an above ground dispensing tank shall have CARB-certified fittings wherever CARB so specifies.

d. New Systems: Each new gasoline tank installation shall use CARB-certified fittings exclusively wherever CARB so specifies, and:

(**1)** Shall have its own separate, functioning 2-point vapor return line;

(2) Is allowed to have a combination vapor recovery system that in addition to having a separate 2-point Stage 1 vapor return line, also has stage 1

vapor piping/fittings linking it to one or more (other) gasoline dispensing tanks.

e. New Coaxial Prohibited:

(1) No coaxial fill pipes shall be installed after June 16, 1999 in new installations; and

(2) No coaxial fill pipes shall be reinstalled after June 16, 1999, in major modifications in which the top of the tank is exposed and the vapor port bung is pre-configured to accept vapor recovery piping.

304 EQUIPMENT MAINTENANCE AND USE REQUIRED: All vapor loss control equipment shall be installed as required, operated as recommended by the manufacturer, and maintained leak free, vapor tight and in good working order.

304.1 Both the owner/operator of a dispensing tank and the driver/operator of a delivery vessel delivering gasoline to the fuel dispensing tank equipped with vapor recovery shall have responsibility to assure that vapor recovery equipment (if required by this rule) is properly connected and in use at all times while gasoline is actively being dropped/delivered..

304.2 The owner/operator of a fuel dispensing tank not exempted by Section 305 shall refuse delivery of gasoline from a delivery vessel which does not bear a current pressure test certification decal issued by the Control Officer. This provision does not apply during times when the facility is unattended or there is only one person under control of the dispensing facility present.

304.3 Coaxial Systems: Both spring-loaded and fixed coaxial fill tubes shall be maintained according to the standards of their manufacturer(s) and be operated so that there is no obstruction of vapor passage from the tank to the delivery vessel.

305 EXEMPTIONS:

305.1 Dispensing Tanks For Farm Operations: Any stationary gasoline dispensing tank used exclusively for the fueling of implements of normal farm operations is exempt from this rule, except for cap, spills, and liquid leakage provisions in Section 301.

305.2 The vapor recovery provisions of Section 303 of this rule shall not apply to the following stationary gasoline dispensing tanks:

a. Non-Resale Dispensing Operations From Non-Farm Tanks: Any stationary gasoline dispensing operation receiving less than 120,000 gallons of gasoline in any 12 consecutive calendar months, dispensing no resold gasoline, and having each gasoline dispensing tank equipped with a permanent submerged fill pipe pursuant to subsection 302.1, is exempt from Section 303. However, any operation shall become subject to the provisions of Section 303 of this rule by exceeding the 120,000 gallon threshold or not

abiding by the restrictions, and shall remain subject to such provisions even if annual emissions later fall below this threshold.

b. Dispensing Tanks Of 1000 Gallons Or Less: Any stationary dispensing tank having a capacity of 1000 gallons (3785 l) or less which was installed prior to October 2, 1978, provided that such tank is equipped with a permanent submerged fill pipe. Where, because of government regulation including, but not limited to, Fire Department codes, such a fill pipe cannot be installed, the gasoline shall be delivered into the tank using a nozzle extension that reaches within 6 inches of the tank bottom.

c. Dispensing Tanks With Offset Fill Lines: Any stationary dispensing tank installed prior to October 2, 1978, where the fill line between the fill connection and tank is offset.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 TANKS THAT LOST THEIR EXEMPTION: Tanks that were formerly exempt from a provision prior to June 16, 1999, shall come into compliance by December 1, 1999.

402 BURDEN OF PROOF:

402.1 Proving Exempt Status: The burden of proof of eligibility for exemption from a provision of this rule is on the applicant. Persons seeking such an exemption shall maintain adequate records and furnish them to the Control Officer upon request.

402.2 Providing Proof Of Equipment Compliance:

a. It is the responsibility of the installer of vapor control equipment, when so required by the Control Officer, to provide proof that a vapor recovery system or its modifications meet the requirements of this Rule 353.

b. If the owner/operator or the equipment supplier voluntarily provides such proof, the Control Officer has the option to waive the subsection 402.2a requirement that the installer provide this proof.

403 CARB DECERTIFICATION: A person shall not install or reinstall a component related to vapor recovery that has been decertified by CARB in “Gasoline Facilities - Phase I & II” publication, referenced in subsection 503.4.

404 OTHER AGENCIES’ REQUIREMENTS: Compliance with this rule does not relieve or otherwise affect a person’s obligation to comply with any other applicable federal, state, or local legal requirement, including, but not limited to, rules promulgated by the Arizona Department of Weights and Measures, local fire department codes, and local zoning ordinances.

SECTION 500 - MONITORING AND RECORDS:

501 COMPLIANCE INSPECTIONS: Any dispensing tank required by this rule to be equipped with vapor loss control devices may be subject to monitoring for vapor tightness and leak tightness during any working hours. Such a tank may be opened for gauging or inspection when loading operations are not in progress, provided that such tank is part of an open system or is served by a positive-pressure relief valve with a relief setting not exceeding +1/2 lb psig.

502 RECORDKEEPING: The owner or operator of each gasoline dispensing facility in Maricopa County shall maintain records as follows:

502.1 The total amount of gasoline received each month shall be recorded by the end of the following month.

502.2 The owner or operator of a gasoline dispensing facility shall cause weekly records of fill tube, vapor valve and spill containment inspection to be kept. The findings of such weekly inspections shall be permanently entered in a record or log book by the end of Saturday of the following week.

502.3 These records and any reports or supporting information required by this rule or by the Control Officer shall be retained for at least 5 years.

502.4 Records of the past 12 months shall be in a readily accessible location and must be made available to the Control Officer without delay upon verbal or written request.

503 COMPLIANCE DETERMINATION: The test methods referenced in Section 504 shall be used in the ways given in the subsections that immediately follow. When more than one test method is permitted for a determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule. For routine information collection, the Control Officer may accept a manufacturer's data sheet (MSDS), data certified by an officer of the supplying company, or test data for the product of inquiry.

503.1 Control efficiency of [emission control device] vapor recovery systems and vapor collection/ processing systems shall be determined according to EPA Method 2A and either EPA Method 25A or 25B (Section 504 and subsection 504.1), or by CARB-approved test methods (Section 504 and subsection 504.4). EPA Method 2B shall be used for vapor incineration devices.

503.2 Vapor pressure of gasoline (reference Section 204) shall be determined using American Society for Testing and Materials (ASTM) Method D323-94 or ASTM Method D4953-93. Method D323-94 shall be used for gasoline either containing no oxygenates or MTBE (methyl tertiary butyl ether) as the sole oxygenate. Method D4953-93 shall be used for oxygenated gasoline.

503.3 Vapor Leaks:

a. If a determination of leak-tight status is to be made on Stage 1 or spill containment equipment at a gasoline dispensing facility or on a delivery vessel at the station, the method in subsection 504.3 shall be used.

b. Subsection 504.3 probe distance and movement parameters notwithstanding, if it has been established that there are no other interfering vapor escapes, it is an exceedance if a reading by the Control Officer from an established vapor escape above 1/5 LEL (or 10,000 ppm as methane) is sustained for at least 5 seconds, and the probe is either consistently further than 1 inch from the source and/or the probe is consistently being moved faster than 4 cm per second.

c. The Control Officer may count it as a failure to perform weekly inspections pursuant to subsection 301.3 if foreign material is found in a spill containment receptacle and there is no record of an inspection's being performed in the preceding 10 days.

503.4 The CARB publication, "Gasoline Facilities - Phase I & II", pursuant to sections 41954 through 41962 of the California Health and Safety Code, is adopted by reference, as it exists on June 16, 1999. This publication is available for reference at Maricopa County Air Quality Division, 1001 North Central Avenue, Suite 200, Phoenix, AZ, 85004-1942, (602) 506-6010, or 6706. This publication is available for purchase at the (California) Air Resources Board, PO Box 2815, 2020 L Street, Sacramento, CA, 95812-2815; (916) 323-0255 or (916) 322-2886.

504 TEST METHODS: The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 1998), as listed below, are adopted by reference. The CARB test methods as they exist in Stationary Source Test Methods, Volume 2, on April 8, 1999, as listed in subsection 504.4 are adopted by reference. The other test methods listed here are also adopted by reference, each having paired with it a specific date that identifies the particular version/revision of the method that is adopted by reference. These adoptions by reference include no future editions or amendments. Copies of test methods referenced in this Section 504 are available at the Maricopa County Environmental Services Department, 1001 North Central Avenue, Phoenix, AZ, 85004-1942.

504.1 EPA Test Methods:

a. EPA Methods 2a ("Direct Measurement of Gas Volume Through Pipes and Small Ducts"), and 2b ("Determination of Exhaust-Gas Volume Flow-Rate From Gasoline Vapor Incinerators"). Both of the foregoing methods are in 40 CFR 60, Appendix A.

b. EPA Method 25 ("Determination of Total Gaseous Nonmethane Organic Emissions as Carbon") and its submethods (40 CFR 60, Appendix A).

504.2 Gasoline Vapor Pressure:

a. American Society for Testing and Materials (ASTM) Method D323-94 (1994) "Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method).

b. American Society for Testing and Materials (ASTM) Method D4953-93 (1993) "Standard Test Method for Vapor Pressure of Gasoline and Gasoline-Oxygenate Blends (Dry Method)

504.3 Leak Detection Test Method:

a. Calibration: Within four hours prior to monitoring, the CGD or OVA shall be suitably calibrated in a manner and with the gas specified by the by the manufacturer for 20 percent LEL response, or calibrated with methane for a 10,000 ppm response.

b. Probe Distance: The probe inlet shall be one inch (2.5 cm) or less from the potential leak source when searching for leaks. The probe inlet shall be one inch (2.5 cm) from the leak source when the highest detector reading is being determined for a discovered leak. When the probe is obstructed from moving within one inch (2.5 cm) of an actual or potential leak source, the closest practicable probe distance greater than 1 inch shall be used.

c. Probe Movement: The probe shall be moved slowly, not faster than 1.6 inches per second (4 centimeters per second). If there is any meter deflection at a potential or actual leak source, the probe shall be positioned to locate the point of highest meter response.

d. Probe Position: The probe inlet shall be positioned in the path of the vapor flow from a leak, such that the central axis of the probe-tube inlet shall be positioned coaxially with the path of the most concentrated vapors.

e. Data Recording: The highest detector reading and location for each incidence of detected leakage shall be recorded, along with the date and time. If no gasoline vapor is detected, that fact shall be entered into the record.

504.4 CARB Certification And Test Procedures For Gasoline Vapor Recovery Systems:

a. CARB Test Method CP-201, "Certification Procedure for Vapor Recovery Systems of Dispensing Facilities".

b. CARB Test Procedure TP-201.1 - "Determination of Efficiency of Phase I Vapor Recovery Systems of Dispensing Facilities without Assist Processors".

c. CARB Test Procedure TP-201.1A - "Determination of Efficiency of Phase I Vapor Recovery Systems of Dispensing Facilities with Assist Processors".

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